

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)



(PCT Article 36 and Rule 70)

REC'D 13 JUN 2006

See Form PCT/IPEA/416 PCT

Applicant's or agent's file reference GN-22587-PCT	FOR FURTHER ACTION	
International application No. PCT/KR2004/001939	International filing date(day/month/year) 02 AUGUST 2004 (02.08.2004)	Priority date (day/month/year) 04 FEBRUARY 2004 (04.02.2004)
International Patent Classification (IPC) or national classification and IPC C12Q 1/68(2006.01)i		
Applicant PARK, Hee-Kyung et al		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of <u>5</u> sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising: <ul style="list-style-type: none"> a. <input type="checkbox"/> (sent to the applicant and to the International Bureau) a total of _____ sheets, as follows: <ul style="list-style-type: none"> <input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box relating to Sequence Listing (see Section 802 of the Administrative Instructions).
4. This report contains indications relating to the following items: <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Box No. I Basis of the report <input type="checkbox"/> Box No. II Priority <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI Certain documents cited <input type="checkbox"/> Box No. VII Certain defects in the international application <input type="checkbox"/> Box No. VIII Certain observations on the international application

Date of submission of the demand 25 AUGUST 2005 (25.08.2005)	Date of completion of this report 25 MAY 2006 (25.05.2006)
Name and mailing address of the IPEA/KR  Korean Intellectual Property Office 920 Dunsan-dong, Seo-gu, Daejeon 302-701, Republic of Korea Facsimile No. 82-42-472-7140	Authorized officer SHIN, Kyeong A Telephone No. 82-42-481-5589 

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Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☒ This report is based on translations from the original language into the following language English, which is the language of a translation furnished for the purposes of:
 - ☐ international search (under Rules 12.3 and 23.1(b))
 - ☒ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
 - ☒ the international application as originally filed/furnished
 - ☐ the description:
 - pages _____ as originally filed/furnished
 - pages* _____ received by this Authority on _____
 - pages* _____ received by this Authority on _____
 - ☐ the claims:
 - pages _____ as originally filed/furnished
 - pages* _____ as amended (together with any statement) under Article 19
 - pages* _____ received by this Authority on _____
 - pages* _____ received by this Authority on _____
 - ☐ the drawings:
 - pages _____ as originally filed/furnished
 - pages* _____ received by this Authority on _____
 - pages* _____ received by this Authority on _____
 - ☒ the sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
 - ☐ the description, pages _____
 - ☐ the claims, Nos. _____
 - ☐ the drawings, sheets _____
 - ☐ the sequence listing (*specify*): _____
 - ☐ any table(s) related to sequence listing (*specify*): _____
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
 - ☐ the description, pages _____
 - ☐ the claims, Nos. _____
 - ☐ the drawings, sheets _____
 - ☐ the sequence listing (*specify*): _____
 - ☐ any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1 - 16	YES
	Claims	None	NO
Inventive step (IS)	Claims	1 - 16	YES
	Claims	None	NO
Industrial applicability (IA)	Claims	1 - 16	YES
	Claims	None	NO

2. Citations and explanations (Rule 70.7)

Reference is made to the following documents:

- D1: US 2003/0170672 A1 (Cho, Jun-Hyeong et al., KR) 11 Sep. 2003
D2: Analytical Chemistry, Vol.75(22), pp.6236-6243 (15 Nov. 2003)
D3: WO 02/04123 A1 (Robodesign International, Inc., US) 17 Jan. 2002
D4: EP 1048723 A1 (Hitachi Software Engineering Co., Ltd., JP) 02 Nov. 2000

I. Novelty and Inventive Step

Claims 1-5 of the present invention relate to a quality control (QC) probe for inspecting a quality of a microarray, in which an oligonucleotide having a complementary sequence to a base sequence of a target product or having any base sequence is labeled with a fluorescent material, the fluorescent material having different excitation/emission wavelength from a fluorescent material labeled in the target product.

Claims 6-11 of the present invention relate to a method for fabricating a microarray in which the QC probe and a target probe are immobilized on a support.

Claims 12-15 of the present invention relate to a method for inspecting a quality of microarray using the QC probe.

Claim 16 relates to an oligonucleotide including a Mycobacterium genus-specific internal transcribed spacer (ITS) base sequence for differentiating Mycobacteria strains selected from SEQ ID NO: 1-2.

(Continued to Supplemental Sheet.)

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Supplemental Box Relating to Sequence Listing

Continuation of Box No. I, item 2:

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this report was established on the basis of:
- a. type of material
- ☒ a sequence listing
- ☐ table(s) related to the sequence listing
- b. format of material
- ☒ on paper
- ☒ in electronic form
- c. time of filing/furnishing
- ☒ contained in the international application as filed
- ☒ filed together with the international application in electronic form
- ☐ furnished subsequently to this Authority for the purposes of search and/or examination
- ☐ received by this Authority as an amendment* on _____
2. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed of furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
3. Additional comments:

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Box No. V

A QC probe, a microarray including the QC probe, a method for inspecting a quality of microarray, and oligonucleotide including a base sequence selected from SEQ ID: NO 1-2 of claims 1-16 are novel over the cited prior art document.

And claims 1-16 cannot be easily invented by a person skilled in the art by using the teachings of D1-D4.

Accordingly, claims 1-16 of the present invention are novel and inventive under PCT Article 33(2) and 33(3).

II. Industrial Applicability

Claims 1-16 of the present invention are industrially applicable under PCT Article 33(4).